



## 2.2 Compliance Status

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This section summarizes the activities conducted to ensure that the Hanford Site is in compliance with federal environmental protection statutes and related state and local environmental protection regulations.

Also discussed is the status of compliance with these requirements. Environmental permits required under the environmental protection regulations are discussed under the applicable statute.

### 2.2.1 Hanford Federal Facility Agreement and Consent Order, 1998 Performance

The Tri-Party Agreement (Ecology et al. 1989) commits DOE to achieve compliance with the remedial action provisions of CERCLA and with the treatment, storage, and disposal unit regulations and corrective action provisions of RCRA, including the state's implementing regulations.

From 1989 through 1998, a total of 597 enforceable milestones and 246 unenforceable target dates were completed on or ahead of schedule.

In 1998, there were 70 specific cleanup milestones and target dates scheduled for completion: 58 were completed on or before their required due dates and 12 were delayed because of safety issues and future Fast Flux Test Facility usage issues.

Highlights of the work accomplished in 1998 are listed in Section 2.3, "Activities, Accomplishments, and Issues."

### 2.2.2 Environmental Management Systems Development

The International Organization for Standardization was founded in 1947 and promotes the development of international manufacturing, trade, and communication standards. In 1996, the organization issued an international voluntary consensus standard ISO 14001, *Environmental Management Systems – Specifications with Guidance for Use*. This industry-driven standard represents the culmination of international environmental standardization efforts spanning nearly two decades.

The ISO 14000-series of standards (Cascio 1996) are based on the following five guiding principles:

- An organization should define its environmental policy and ensure commitment to its environmental management system.

- An organization should formulate a plan to fulfill its environmental policy.
- For effective implementation, an organization should develop the capabilities and support mechanisms necessary to achieve its environmental policy, objectives, and targets.
- An organization should measure, monitor, and evaluate its environmental performance.
- An organization should review and continually improve its environmental management system, with the objective of improving its overall environmental performance.

The basis for any environmental management system is compliance with applicable environmental laws, regulations, permits, and other requirements.



An effective system goes beyond compliance and provides an organization with a systematic approach to the development, implementation, and maintenance of an environmental policy. The precept is that through planning, implementation, checking, management review, and continuous improvement, organizations become more effective and efficient in the management of their activities and the impacts of those activities on the environment.

During 1998, the environmental management system at Pacific Northwest National Laboratory was reviewed and approved by DOE Headquarters. This environmental management system was the first among national laboratories to receive this approval.

Fluor Daniel Hanford, Inc., the site management and integration contractor, issued in June 1997 HNF-EP-925, *Environmental Management System Implementation Plan*. At that time, a decision was made to include ISO 14001 in developing an integrated safety management system. During development, the name of the management system was changed.

HNF-MP-003, *Integrated Environment, Safety and Health Management System Plan*, establishes a single, defined safety and environmental management system that integrates environment, safety, and health requirements into the work planning and execution processes to effectively protect the workers, public, and environment. That plan specifically addresses the Project Hanford Management Contract requirements for a safety and environmental management system that satisfies Defense Nuclear Facilities Safety Board recommendations, addresses implementation of an environmental management system consistent with the principles of the ISO 14001 standard, and supports radiological control considerations. The Fluor Daniel Hanford, Inc. integrated environment, safety, and health management system is primarily based on the philosophies, principles, and requirements of DOE P 450.4, *Safety Management System Policy*, and the ISO 14001 standard and also incorporates the best practices of the following policies,

standards, and initiatives: Voluntary Protection Program, Responsible Care® of the Chemical Manufacturer's Association, and Enhanced Work Planning/Hanford Occupational Health Process.

Five safety management core functions defined in DOE P 450.4 provide the necessary planning, checks, and controls for any work that could potentially affect the workers, public, or environment. An environmental management system is defined in the ISO 14001 standard as "the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing, and maintaining the environmental policy."

The Fluor Daniel Hanford, Inc. integrated environment, safety, and health management system consists of seven core functions that capture both DOE P 450.4 and ISO 14001 elements:

- establish environment, safety, and health policy
- define scope of work
- identify hazards and requirements
- analyze hazards and implement controls
- perform work within controls
- provide feedback and process improvement
- perform management review.

A deliberate, careful comparison and integration of DOE P 450.4 and the ISO 14001 standard resulted in the development of the guiding principles and core functions identified in HNF-MP-003. These guiding principles and core functions are the cornerstones for development of the Fluor Daniel Hanford, Inc. integrated environment, safety, and health management system. Provided in HNF-MP-003 is an appendix that cross references the elements of ISO 14001 and the guiding principles and core functions. A person familiar with ISO 14001 can use this appendix as a cross-reference to identify sections that correlate to ISO 14001 standard elements.



The final plan was issued in September 1997. Planning for implementation of the system at Fluor Daniel Hanford, Inc.-managed facilities was in place by September 1998.

Integrated environmental, health, and safety system implementation is proceeding throughout the Project Hanford Management Contract team. Environmental management is being infused at all levels. During the past year, enhanced work planning was targeted to focus integrated environmental, health, and safety system implementation at the “activity” level. Environmental considerations have been incorporated into the enhanced work planning effort.

#### **2.2.2.1 Chemical Management System**

The Hanford Site, with its numerous contractors, facilities, and processes uses a variety of approaches for chemical management. In an effort to develop a uniform set of requirements for managing chemicals on the Hanford Site, the prime contractors initiated a coordinated effort to create a joint plan of action for chemical management on the Hanford Site. A multicontractor chemical management system working group was formed, and a strategy for chemical management was developed.

As part of the strategy, the prime contractors developed chemical management system requirements for the Hanford Site. The requirements were approved by the prime contractors on November 25, 1997 and transmitted to the DOE Richland Operations Office. These requirements are applicable within the Hanford Site to the acquisition, use, storage, transportation, and final disposition of chemicals, including hazardous chemicals as defined in the Occupational Safety and Health Administration’s

hazard communication standard (29 CFR 1910.1200, Appendixes A and B).

The prime contractors used these requirements to evaluate the adequacy of their chemical management programs, identify opportunities for improvement, implement changes as appropriate, and drive the day-to-day management of chemicals. It was recognized, based on the complexity of chemical management operations and the nature and severity of associated hazards, that these chemical management system requirements would be applied using a graded approach.

During the first quarter of 1998, each contractor performed a gap analysis of their chemical operations against the chemical management system requirements. The gaps identified, including procedure development and/or modifications, were translated into needs. These were then evaluated, using a graded approach that considered complexity of operations and associated hazards. The outcome of the gap analysis was identification of actions for each of the prime contractors to obtain conformance with the chemical management system requirements. For the remainder of 1998 and during the first quarter of 1999, the prime contractors worked toward conformance with the established requirements. Completion of conformance is scheduled for 1999, and further enhancements to contractor chemical management systems will be implemented in 2000 and beyond.

The chemical management system requirements incorporate best industry practices, drive continuous improvement, and will be incorporated into the integrated environmental, safety, and health management system of the prime contractors. Discussions with the EPA and affected stakeholders are ongoing. These discussions include the designs for chemical management systems.



### 2.2.3 Comprehensive Environmental Response, Compensation, and Liability Act

In 1980, CERCLA was enacted to address past releases or potential releases of hazardous substances, pollutants, and contaminants to the environment. The EPA is the federal agency responsible for oversight of DOE's implementation of CERCLA. There is significant overlap between the state RCRA corrective action program (see Section 2.2.5) and CERCLA, and many waste management units are subject to remediation under both programs. The CERCLA program is implemented via 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan, which establishes procedures for

characterization, evaluation, and remediation. The Tri-Party Agreement addresses CERCLA implementation at Hanford and is generally consistent with the contingency plan process.

There are several remediation activities under way at Hanford that are being accomplished using the CERCLA process (e.g., remedial investigation in the 200 and 300 Areas, cleanup in the 100 and 300 Areas). Specific project activities and accomplishments are described in Section 2.3.12, "Environmental Restoration Project."

### 2.2.4 Emergency Planning and Community Right-To-Know Act

This Act requires states to establish a process for developing chemical emergency preparedness programs and to distribute within communities information on hazardous chemicals present in facilities. The Act has two subtitles: Subtitle A includes requirements for emergency planning (Sections 301-303) and emergency release notification (Section 304); Subtitle B requires periodic reporting of chemical inventories and associated hazards (Sections 311-312), releases, and waste management activities (Section 313).

Sections 301-303 require states to establish a state emergency response commission and local emergency planning committees. These organizations are tasked to gather information and develop emergency plans for local planning districts in the state. Facilities that produce, use, or store extremely hazardous substances in quantities above threshold planning quantities must identify themselves to the state emergency response commission and local emergency planning committee, provide any additional information the local emergency planning committee

requires for development of the local emergency response plan, and notify the committee of any changes occurring at the facility that may be relevant to emergency planning. It should be noted that the entire Hanford Site is considered a facility for the purpose of determining threshold planning and reporting quantities. This does not include, however, activities conducted by others on Hanford Site lands covered by leases, use permits, easements, and other agreements whereby land is used by parties other than DOE.

Under Section 304, facilities must also notify the state emergency response commission and the local emergency planning committee immediately after an accidental release of an extremely hazardous substance over the reportable quantity established for that substance, and follow up the notification with a written report. Extremely hazardous substances are listed in 40 CFR 355 (Appendixes A and B) along with the applicable threshold planning quantity and reportable quantity.



Sections 311-312 require facilities that store hazardous chemicals in amounts above minimum threshold levels to report information regarding those chemicals to the state emergency response commission, local emergency planning committee, and local fire department. Both sections cover chemicals that are considered physical or health hazards by the Occupational Safety and Health Act of 1970 Hazard Communication Standard (29 CFR 1910.1200). The minimum threshold level is 4,545 kg (10,000 lb) for hazardous chemicals. If the chemical is an extremely hazardous substance, the minimum threshold level is 277 kg (500 lb) or the listed threshold planning quantity, whichever is less. Section 311 calls for the submittal of a material safety data sheet for each hazardous chemical present above minimum threshold levels or a listing of such chemicals with associated hazard information. The listing must be updated within 3 mo of any change to the list, including receipt of new chemicals above minimum threshold levels or discovery of significant new hazard information regarding existing chemicals. Section 312 requires annual submittal of more-detailed quantity and storage information regarding the same list of chemicals in the form of a tier one or tier two emergency and hazardous chemical inventory report. These minimum threshold levels apply to the total quantities of such chemicals that are stored or received in aggregate at the Hanford Site, not to individual facilities at the site.

The Hanford Site provides appropriate hazardous chemical inventory information to the Washington State Department of Ecology Community Right-To-Know Unit; local emergency planning committees for Benton, Franklin, and Grant Counties; and to both the Richland and Hanford Site fire departments. Updated material safety data sheet listings were issued in April 1998, January 1999, and March 1999, covering chemical inventory changes occurring during 1998. During 1998, these listings averaged 39 to 42 hazardous chemicals present in quantities exceeding minimum threshold levels, 3 to

4 of which were extremely hazardous. The 1998 Hanford Site tier two emergency and hazardous chemical inventory (DOE/RL-99-16) was issued in February 1999.

Under Section 313, facilities must report total annual releases of certain listed toxic chemicals. The Pollution Prevention Act requires additional information with the report, and Executive Order 12856 (EPA 100-K-93-001) extends the requirements to all federal facilities, regardless of the types of activities conducted.

The 1997 Hanford Site toxic chemical release inventory (DOE/RL-98-39) was issued in June 1998. Two listed toxic chemicals were used at the Hanford Site in amounts above established activity thresholds: phosphoric acid and chlorine. Because the total quantity of chlorine released and managed as waste amounted to <277 kg (500 lb), the Hanford Site qualified for the alternate 455,000-kg (1,000,000-lb) activity threshold for chlorine. Accordingly, the 1997 toxic chemical release inventory included information regarding releases of phosphoric acid and other related waste management information and a signed certification that Hanford qualified for the alternate threshold for chlorine.

Based on evaluation of 1998 Hanford Site toxic chemical usage data, chlorine was the only chemical used in quantities exceeding applicable activity thresholds that require reporting under Section 313. Because the associated activities resulted in minimal quantities of chlorine released to the environment or entering waste streams, the site was eligible to apply the alternate 455,000-kg (1,000,000-lb) threshold for manufacture, process, or other use of the chemical. Accordingly, the site submitted the required forms for chlorine, certifying that the criteria for applying the alternate threshold were met.

Table 2.2.1 provides an overview of 1998 Emergency Planning and Community Right-To-Know Act of 1886 reporting.



**Table 2.2.1. Emergency Planning and Community Right-to-Know Act Compliance Reporting, 1998<sup>(a)</sup>**

<b><u>Sections of the Act</u></b>	<b><u>Yes</u></b>	<b><u>No</u></b>	<b><u>Not Required</u></b>
302-303: Planning notification	X <sup>(b)</sup>		
304: Extremely hazardous substances release notification			X
311-312: Material safety data sheet/chemical inventory (for calendar year 1998)	X		
313: Toxic chemical release inventory reporting (for calendar year 1998)	X		

- (a) "Yes" indicates that notifications were provided and/or reports were issued under the applicable provisions. "No" indicates that notifications or reports should have been provided but were not. "Not Required" indicates that no actions were required under the applicable provisions, either because triggering thresholds were not exceeded or no releases occurred.
- (b) These notifications apply to the Hanford Site but were completed prior to 1998.

## 2.2.5 Resource Conservation and Recovery Act

### 2.2.5.1 Hanford Facility RCRA Permit

The Hanford Facility RCRA Permit (#WA7890008967), Dangerous Waste Portion, that was issued by the Washington State Department of Ecology has been in effect since late September 1994 (DOE/RL-91-28, Rev. 3). The permit provides the foundation for all future RCRA permitting on the Hanford Site in accordance with provisions of the Tri-Party Agreement (Ecology et al. 1989).

### 2.2.5.2 RCRA/Dangerous Waste Permit Applications and Closure Plans

For purposes of the RCRA and the Washington State dangerous waste regulations (Washington Administrative Code [WAC] 173-303), the Hanford Site is considered to be a single facility that encompasses over 60 treatment, storage, and disposal units. The Tri-Party Agreement recognized that all of the treatment, storage, and disposal units could not be

permitted simultaneously and a schedule was established for submitting unit-specific Part B dangerous waste permit applications and closure plans to the Washington State Department of Ecology.

During 1998, nine Part A, Form 3, revisions and one new Part A, Form 3, were certified and submitted to the Washington State Department of Ecology. In 1998, two Part B permit applications for final status were certified and submitted. In addition, two Notices of Intent for interim-status expansion and 11 closure-related documents were filed with the Washington State Department of Ecology.

### 2.2.5.3 RCRA Groundwater Monitoring Project Management

Table 2.2.2 lists the facilities and units (or waste management areas) that require groundwater monitoring and notes their monitoring status. Samples were collected from approximately 244 RCRA wells sitewide in 1998; approximately the same number of wells sampled during 1997.

**Table 2.2.2. RCRA Interim- and Final-Status Groundwater Monitoring Projects, as of September 1998**

TSD Units, date initiated (associated [CERCLA] groundwater operable units)	Interim-Status TSD Unit Groundwater Monitoring		Final-Status TSD Unit Groundwater Monitoring		Regulations	Year Scheduled for Part B or Closure
	Indicator Parameter Evaluation, date initiated <sup>(a)</sup>	Groundwater Quality Assessment, date initiated	Detection Evaluation	Corrective Action, date initiated		
1301-N LWDF, December 1987 (100-NR-2)	X				40 CFR 265.93(b) WAC 173-303-400	1999 <sup>(b)</sup>
1324-N/NA LWDF, December 1987 (100-NR-2)	X				40 CFR 265.93(b) WAC 173-303-400	1998 <sup>(b)</sup>
1325-N LWDF, December 1987 (100-NR-2)	X				40 CFR 265.93(b) WAC 173-303-400	1999 <sup>(b)</sup>
120-D-1 ponds, April 1992 (100-HR-3)	X, clean closure in FY 1999				40 CFR 265.93(b) WAC 173-303-400	1998 <sup>(c)</sup>
183-H solar evaporation basins, June 1985 (100-HR-3)				X, 1998	40 CFR 264 WAC 173-303-645(10)	1994 <sup>(b)</sup>
216-S-10 pond and ditch, August 1991	X				40 CFR 265.93(b) WAC 173-303-400	>2000 <sup>(b)</sup>
216-U-12 crib, September 1991 (200-UP-1)		X, 1993			40 CFR 265.93(d) WAC 173-303-400	>2000 <sup>(b)</sup>
216-B-3 pond, November 1988 (200-PO-1)	X, January 1998 <sup>(d)</sup>				40 CFR 265.93(b) WAC 173-303-400	2000 <sup>(b)</sup>
216-A-29 ditch, November 1988 (200-PO-1)	X				40 CFR 265.93(b) WAC 173-303-400	2000 <sup>(b)</sup>
PUREX cribs <sup>(e)</sup> 1988 (200-PO-1)		X, 1997			40 CFR 265.93(d) WAC 173-303-400	>2000 <sup>(b)</sup>



Table 2.2.2. (contd)

TSD Units, date initiated (associated [CERCLA] groundwater operable units)	Interim-Status TSD Unit Groundwater Monitoring		Final-Status TSD Unit Groundwater Monitoring		Regulations	Year Scheduled for Part B or Closure
	Indicator Parameter Evaluation, date initiated <sup>(a)</sup>	Groundwater Quality Assessment, date initiated	Detection Evaluation	Corrective Action, date initiated		
216-B-63 trench, August 1991 (200-PO-1)	X				40 CFR 265.93(b) WAC 173-303-400	>2000 <sup>(b)</sup>
LERF, July 1991			X, 1998 <sup>(f)</sup>		40 CFR 265.93(b) WAC 173-303-400	1998 <sup>(g)</sup>
LLWMA 1, September 1988	X				40 CFR 265.93(b) WAC 173-303-400	TBD <sup>(g,h)</sup>
LLWMA 2, September 1988	X				40 CFR 265.93(b) WAC 173-303-400	TBD <sup>(g,h)</sup>
LLWMA 3, October 1988	X				40 CFR 265.93(b) WAC 173-303-400	TBD <sup>(g,h)</sup>
LLWMA 4, October 1988 (200-ZP-1)	X				40 CFR 265.93(b) WAC 173-303-400	TBD <sup>(g,h)</sup>
WMA A-AX, February 1990	X				40 CFR 265.93(b) WAC 173-303-400	>2000 <sup>(b)</sup>
WMA B-BX-BY, February 1990		X, 1996			40 CFR 265.93(d) WAC 173-303-400	>2000 <sup>(b)</sup>
WMA C, February 1990 (200-PO-1)	X				40 CFR 265.93(b) WAC 173-303-400	>2000 <sup>(b)</sup>
WMA S-SX, October 1991 (200-UP-1)		X, 1996			40 CFR 265.93(d) WAC 173-303-400	>2000 <sup>(b)</sup>
WMA T, February 1990 (200-ZP-1)		X, 1993			40 CFR 265.93(d) WAC 173-303-400	>2000 <sup>(b)</sup>
WMA TX-TY, September - October 1991 (200-ZP-1)		X, 1993			40 CFR 265.93(d) WAC 173-303-400	>2000 <sup>(b)</sup>





Table 2.2.2. (contd)

TSD Units, date initiated (associated [CERCLA] groundwater operable units)	Interim-Status TSD Unit Groundwater Monitoring		Final-Status TSD Unit Groundwater Monitoring		Regulations	Year Scheduled for Part B or Closure
	Indicator Parameter Evaluation, date initiated <sup>(a)</sup>	Groundwater Quality Assessment, date initiated	Detection Evaluation	Corrective Action, date initiated		
WMA U, October 1990 (200-ZP-1)	X				40 CFR 265.93(b) WAC 173-303-400	>2000 <sup>(b)</sup>
NRDWL, October 1986 (200-PO-1)	X				40 CFR 265.93(b) WAC 173-303-400	>2000 <sup>(b)</sup>
316-5 process trenches, June 1985 (300-FF-5)				X, 1996	40 CFR 264 WAC 173-303-645(10)	1996 <sup>(b,i)</sup>

- (a) Specific parameters (pH, specific conductance, total organic carbon, and total organic halides) used to determine if a facility is affecting groundwater quality. Exceeding the established limits means that additional evaluation and sampling are required (groundwater quality assessment). An X in the assessment column indicates whether an evaluation was needed or an assessment was required.
- (b) Closure/postclosure plan; TSD unit will close under final status.
- (c) Closure plan approval expected in fiscal year 1999; facility groundwater monitoring not required after clean closure.
- (d) Reverted to indicator parameter evaluation following assessment.
- (e) 216-A-10, -A-36B, and A-37-1 combined into one RCRA monitoring unit. RCRA monitoring will be performed according to interim-status groundwater quality assessment requirements.
- (f) Will monitor groundwater under interim status until final-status groundwater monitoring plan is approved.
- (g) Part B permit; TSD unit scheduled to operate under final-status regulations beginning in year indicated.
- (h) Facility Part B permit and final-status groundwater monitoring plan contingent on completion of solid waste environmental impact statement.
- (i) Closure plan pending Washington State Department of Ecology approval.

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

LERF = Liquid effluent retention facility.

LLWMA = Low-level waste management area.

LWDF = Liquid waste disposal facility.

NRDWL = Nonradioactive Dangerous Waste Landfill.

PUREX = Plutonium-uranium extraction (plant).

RCRA = Resource Conservation and Recovery Act of 1976.

TBD = To be determined.

TSD = Treatment, storage, or disposal (unit).

WMA = Waste management area (single-shell tank farm).

> = Beyond the year 2000.



Groundwater samples were analyzed for a variety of dangerous waste constituents and site-specific constituents, including selected radionuclides. The constituent lists meet the minimum RCRA regulatory requirements and are integrated to supplement other groundwater project requirements (e.g., CERCLA) at the Hanford Site.

During 1998, 11 new RCRA wells were installed (Table 2.2.3); 10 to fulfill requirements of the Tri-Party Agreement and 1 as part of the proposed immobilized low-activity waste disposal site in support of performance assessment activities.

Milestone M-24-00J (Ecology et al. 1989) required the installation of 10 new RCRA groundwater monitoring wells. The installation of these 10 wells was successfully completed in November 1998. Of these, seven were installed as new assessment wells to replace those going dry at Waste Management Areas T and TX-TY and at the

216-U-12 Crib in the 200-West Area. One new assessment well was installed at Waste Management Area B-BX-BY in the 200-East Area, and two detection groundwater monitoring wells were installed at Waste Management Area U in the 200-West Area. The nine new 200-West Area wells have well screens intended to extend their useful life. Of the 10 wells, 2 were drilled deep in the aquifer to characterize the vertical extent of known groundwater contaminants and define aquifer flow boundaries before being completed as shallow wells. Well data reports (PNNL-11957, PNNL-12124, PNNL-12125, PNNL-12126, PNNL-12127, and PNNL-12128) contain more-detailed information about these new wells, including the detailed geologic and geophysical descriptions and a complete set of sample data results.

At the end of 1998, 17 RCRA waste management areas were monitored, and no evidence was found that they were adversely affecting groundwater quality. Other waste management areas were monitored for assessment or compliance programs to determine the impacts of contamination detected in groundwater at those areas. Highlights of 1998 RCRA monitoring activities are summarized below.

Interim-status assessment monitoring programs continued at four single-shell tank waste management areas in 1998 primarily to determine the source of contamination detected in downgradient and surrounding wells. Contamination from chemically similar sources (e.g., cribs, trenches) near the tank farms made it difficult to differentiate whether the waste management areas (tank farms, transfer lines, diversion boxes) were the source. The ongoing assessment investigations indicate that the waste management areas are the true source. The T and TX-TY single-shell tank farms (200-West Area) have been monitored under an assessment program since 1993 because of elevated specific conductance. An assessment report (PNNL-11809) concluded that the tanks or associated structures probably have contaminated the groundwater with technetium-99. An assessment management program at Waste

**Table 2.2.3. RCRA Well Installation Summary, 1998**

<b>Well Number<sup>(a)</sup></b>	<b>Well Identification</b>	<b>Location</b>
299-W10-23	B8545	T <sup>(b)</sup>
299-W10-24	B8546	T
299-W14-14	B8547	TX-TY
299-W10-26	B8548	TX-TY
299-W14-13	B8549	TX-TY
299-W15-40	B8550	TX-TY
299-W19-41	B8551	U
299-W19-42	B8553	U
299-W22-79	B8552	216-U-12 Crib
299-E33-44	B8554	B-BX-BY <sup>(b)</sup>
299-E17-21	B8500	ILAW

(a) "W" in number indicates 200-West Area; "E" 200-East Area. Well number is an older identification number that is used to locate the well in the field. The separate well identification is a newer identification number that is used to track the wells in electronic databases.

(b) Waste management area (single-shell tank farm).  
ILAW = Immobilized low-activity waste site.



Management Area S-SX (200-West Area) began in 1996. It appears that this waste management area contaminated the groundwater with technetium-99, nitrate, and hexavalent chromium. Waste Management Area B-BX-BY (200-East Area) appears to have contaminated the groundwater with technetium-99.

The 183-H Solar Evaporator Basins (100-H Area) and the 316-5 Process Trenches (300 Area) were monitored under final-status regulations during 1998. The 183-H Basins have contaminated the groundwater with technetium-99, uranium, nitrate, and chromium at levels exceeding applicable limits. The CERCLA program is addressing corrective action, and an interim remedial action (pump-and-treat system) for chromium continued operation in 1998. Groundwater monitoring to meet RCRA requirements is continuing during the remediation.

The 316-5 Process Trenches and other nearby sources contaminated the groundwater with cis-1,2-dichloroethylene, trichloroethylene, and uranium at levels above their respective concentration limits. However, a corrective action monitoring plan has not been approved for these waste sites, and monitoring is continuing under an existing compliance plan. Natural attenuation of the contaminants is the corrective action chosen. Groundwater monitoring is continuing in accordance with RCRA to monitor the decline in contaminant concentrations.

The results of groundwater monitoring are discussed in detail in Section 6.1, "Hanford Groundwater Monitoring Project."

#### 2.2.5.4 RCRA Inspections

DOE and its contractors are working to resolve outstanding notices of violation and warning letters of noncompliance from the Washington State Department of Ecology that were received during 1998. Each of these notices lists specific violations. RCRA noncompliance events for 1998 are detailed below.

- The Washington State Department of Ecology issued a Notice of Correction in response to a dangerous waste compliance inspection of tank 241-SX-104 in the 200-West Area. Corrective actions are being negotiated under the Tri-Party Agreement.
- The Washington State Department of Ecology issued a Notice of Correction, Notice of Penalty, and Administrative Order in response to a dangerous waste compliance inspection at the SY double-shell tank farm in the 200-West Area. Alleged violation #2 of the Notice of Correction, Notice of Penalty, and Administrative Order was challenged and resulted in a settlement agreement that defined the leak detection system for Hanford's double-shell tanks.
- The Washington State Department of Ecology issued a Notice of Correction in response to a dangerous waste compliance inspection of the 324 Building in the 300 Area. Corrective actions were completed, and responses to the items in the Notice of Correction were provided.
- The Washington State Department of Ecology issued a Notice of Intent to Sue for missed Tri-Party Agreement milestones associated with Hanford's single-shell tank stabilization program. After intensive negotiations, the notice resulted in a Consent Decree that expedited the completion of Hanford's single-shell tank stabilization.
- The Washington State Department of Ecology issued a letter that required the development of a single-shell tank corrective action program. An agreement was reached by which the original corrective action plan requirement and subsequent dispute resolution process were suspended, pending further negotiations.
- The Washington State Department of Ecology and the U.S. Environmental Protection Agency issued a Notice of Violation against the Environmental Restoration Disposal Facility in the 200-West Area, the 200-UP-1 Operable Unit pump-and-treat project in the 200-West Area, and the 100-B,C Area remedial action project. There were two violations and one item of concern that required correction pertaining to RCRA as an applicable or relevant and appropriate requirement. In addition to the RCRA issues, there were three items of concern that required



action related to strategy for management of investigation-derived waste and waste control planning in the 200-UP-1 Operable Unit. The notice also included a violation and an item of concern relating to WAC 246-247 and 40 CFR 61, Subpart H

(air emissions). The notice required four actions be taken to resolve the identified issues and violations. The issues and required actions identified in the notice have been addressed.

## 2.2.6 Clean Air Act

Federal, state, and local agencies enforce Clean Air Act of 1986 (Section 118) standards and requirements for regulation of air emissions at facilities such as the Hanford Site. A summary of the major agency interfaces and applicable regulations for the Hanford Site is provided in the following paragraphs.

The Washington State Department of Health's Division of Radiation Protection regulates radioactive air emissions statewide through delegated authority from EPA and its implementing regulation (WAC 246-247). Prior to commencing any work that would result in creating a new or modified source of radioactive airborne emissions, a notice of construction application must be submitted to the Washington State Department of Health by the DOE Richland Operations Office, and usually the EPA, for review and approval. Applicable controls and annual reporting of all radioactive air emissions are standard requirements. The Hanford Site operates under state license FF-01 for such emissions. The conditions specified in the license will be incorporated into the Hanford Site air operating permit, scheduled to be issued in late 1999 in accordance with Title V of the Clean Air Act and Amendments of 1990 and the federal and state programs under 40 CFR 70 and WAC 173-401, respectively. The Hanford Site air operating permit will include a compilation of requirements for both radioactive emissions now covered by the existing state license and nonradioactive emissions. The permit requires the owner (DOE Richland Operations Office) to submit periodic reports and an annual compliance certification to the state.

Revised requirements for radioactive air emissions were issued in December 1989 under 40 CFR 61, Subpart H. The total emissions from the Hanford Site's DOE operations result in offsite exposures that remain well below the state and EPA offsite emission standard of 10 mrem/yr. Reporting and monitoring requirements necessitate routine evaluation of all radionuclide emission points on the Hanford Site to determine those subject to the continuous emission measurement requirements in 40 CFR 61, Subpart H, reflected in both federal and state regulations. The 1989 requirements for flow and emissions measurements, quality assurance, and sampling documentation have been implemented at all Hanford Site sources and/or are tracked for milestone progress, as discussed below, in accordance with a schedule approved by the EPA and monitored by the Washington State Department of Health.

The *Federal Facility Compliance Agreement for Radionuclide NESHAP* (1994) was signed by EPA Region 10 and DOE and provides a compliance plan and schedule that are being followed to bring the Hanford Site into compliance with the Clean Air Act of 1986, as amended, and its implementing regulations in 40 CFR 61, Subpart H that address sampling of airborne emissions. All 1998 federal facility compliance agreement milestones were met, and Hanford Site air emissions remained well below all regulatory limits set for radioactive and other pollutants.

The Washington State Department of Ecology enforces state regulatory controls for air contaminants as allowed under the Washington Clean Air



Act (Revised Code of Washington [RCW] 70.94). The implementing requirements (e.g., WAC 173-400, 173-460) specify applicable controls, reporting, notifications, permitting, and provisions of compliance with the general standards for applicable Hanford Site sources.

Pursuant to 40 CFR 61, Subpart M, EPA promulgated regulations specifically addressing asbestos emissions. These regulations apply at the Hanford Site in building demolition and/or renovation and waste disposal operations. Asbestos at Hanford is handled in accordance with EPA regulations and approved contractor procedures.

Title VI of the Clean Air Act Amendments of 1990 require regulation of the service, maintenance, repair, and disposal of appliances containing Class I and Class II ozone-depleting substances (refrigerants) through implementation of the requirements in 40 CFR 82. Implementation of the EPA requirements for ozone-depleting substance management on the Hanford Site is administered through a sitewide implementation plan (DOE/RL-94-86). The continued need for this implementation plan is being evaluated by the DOE Richland Operations Office to determine if it should be updated to reflect changes in Hanford Site contractor relationships and applicable federal regulations.

The Benton Clean Air Authority enforces Regulation 1, which pertains to open burning and asbestos handling. The Benton Clean Air Authority has been delegated the authority to enforce EPA asbestos regulations under the national emission standards for hazardous air pollutants (40 CFR 61, Subpart M). There was one asbestos compliance issue identified and resolved at a Bechtel Hanford Inc. project during 1998.

During 1998, routine reporting and/or notification of air emissions was provided to each air quality agency in accordance with requirements.

### 2.2.6.1 Clean Air Act Enforcement Inspections

DOE and its contractors are working to resolve outstanding compliance findings from the Washington State Departments of Health and Ecology inspections. The noncompliance events in 1998 are listed below.

- The Washington State Department of Health issued a Notice of Correction in response to a compliance inspection of the 296-S-25 and 296-S-22 Emission Units (stacks) on waste receiving tanks associated with underground storage tanks in the 200-West Area. The inspection concluded that the emission units were not maintained and operated in compliance with technology standards required by regulation. The notice identified two corrective actions that have been responded to.
- The Washington State Department of Health issued a Notice of Violation/Notice of Correction in response to a tritium release event at the 324 Building in the 300 Area. The regulator concluded that the release event violated sampling requirements and the approved Notice of Construction for the activities associated with the release. The notice identified two violations and three corrective actions. The corrective actions were addressed during a number of meetings held with the regulator.
- The Washington State Department of Health issued a Notice of Correction in response to an inspection at the 200 Areas Effluent Treatment Facility in the 200-East Area. The inspection concluded that reporting and monitoring requirements were not met regarding a spill of contaminated waste water at the facility. The notice identified seven corrective actions that have been responded to.
- The Washington State Department of Health issued a Notice of Violation/Notice of Correction in response to an inspection at the 200 Areas Effluent Treatment Facility. Violations of approved controls and reporting requirements were identified. The notice identified two violations and three corrective actions that have been responded to.
- The Washington State Department of Health issued a Notice of Correction for the 105-C Building in



- the 100-B,C Area and the Radiological Counting Facility in the 100-N Area. The 105-C Building is a deactivated reactor that has been placed in interim safe storage, and the Radiological Counting Facility performs screening analysis for Environmental Restoration Project samples. Air monitoring samples from the 105-C Building interim safe storage project were analyzed at a facility with quality control procedures that did not meet the state's regulatory requirements and results of air emissions sampling were not individually reported in the annual radionuclide air emission report. A required annual test was not conducted at the Radiological Counting Facility in 1996 and 1997. A letter response was transmitted to the Washington State Department of Health in September 1998 to close out these issues.
- The Washington State Department of Health issued a Notice of Correction in response to an inspection at the AP double-shell tank farm in the 200-East Area. The inspection concluded that calibration requirements were not met. The notice identified four corrective actions that have been responded to.
  - The Washington State Department of Health issued a Notice of Correction in response to a review of a 10-d report associated with a radiological release from the 152-ER Diversion Box, used for transfers of underground tank waste in the 200-East Area. The review concluded that additional controls were required to prevent the release of contamination.

The notice identified three corrective actions that have been responded to.

- The Washington State Department of Health issued a Notice of Correction in response to a sitewide inspection. The regulator concluded that the lack of documentation provided during the inspection demonstrated that technology standards were not being met in accordance with approved Notices of Construction. The Notice of Correction identified three corrective actions that have been responded to.
- As a result of work being performed in the 325 Building by the Tritium Target Qualification Project, an unplanned release of tritium occurred on December 9, 1998. Although the released quantity of tritium was below existing permit limitations, the Washington State Department of Health issued a Stop Work Order for the 325 Building project. In response to the Stop Work Order, corrective actions were implemented to improve work processes and modify research equipment to reduce the potential for unplanned releases. The regulator concurred with the corrective measures and subsequently lifted the Stop Work Order (February 10, 1999). Work has continued without further incident. The objective of this project is to assess the tritium yield from tritium target rods irradiated at the Idaho National Engineering and Environmental Laboratory.

## 2.2.7 Clean Water Act

The Clean Water Act of 1997 applies to point source discharges to waters of the United States. At the Hanford Site, the regulations are applied through National Pollutant Discharge Elimination System (40 CFR 122) permits that govern effluent discharges to the Columbia River.

There are two National Pollutant Discharge Elimination System permits for the site. Permit #WA-000374-3 includes four inactive outfalls (005, 006, 007, and 009 in the 100-N Area) and three active outfalls (003 and 004 in the 100-K Area and 013 in the 300 Area). There were two instances of noncompliance for these outfalls in 1998. Permit

#WA-002591-7 governs outfall 001A, located at the 300 Area Treated Effluent Disposal Facility.

An application for a permit modification for the 300 Area Treated Effluent Disposal Facility (permit #WA-002591-7) was submitted to the EPA in November 1997. The application requested the transfer of outfalls 003 and 004 (100-K Area) from existing permit #WA-000374-3 to permit #WA-002591-7. The 100-N outfalls (005, 006, 007, 009, and N Springs) identified in permit #WA-000374-3 were not included in the application because active discharges to these outfalls have ceased. N Springs may have some residual seepage from the ground and



this is being addressed under the CERCLA program. A summary discussing why another outfall (013A in the 300 Area) should be exempt from permitting was also attached to the application. The revised permit was issued in early 1999.

Permit #WA-002591-7 had 14 permit infractions in 1998. All were the result of contaminant levels in effluents exceeding the permit limits. The facility was in normal operation and meeting design specifications at the time of these events. All indications suggest that the facility is unable to consistently meet the restrictions of the permit despite the use of the best available technology.

The Hanford Site was covered by two stormwater permits (WAR-00-000F, WAR-10-000F) in 1998. In compliance with the industrial stormwater discharge permit, an annual comprehensive site compliance evaluation was performed and documented in 1998 (HNF-3100). In accordance with the September 30, 1998 Federal Register (63 FR 52430), the stormwater general permit for industrial activity (WAR-00-000F) was terminated and replaced by the multisector general stormwater permit (WAR-10-000F). On December 28, 1998, a Notice of Intent was submitted to EPA for coverage under the National Pollutant Discharge Elimination System multisector general stormwater permit (WAR-10-000F).

DOE Richland Operations Office has a pretreatment permit (CR-IU005) from the city of Richland for the discharge of wastewater from the William R. Wiley Environmental Molecular Sciences Laboratory in the Richland North Area. Also, there are numerous sanitary waste discharges to the ground, as well as 400 Area sanitary waste discharge to the Energy Northwest (formerly known as the Washington Public Power Supply System) treatment facility (see Figure 1.0.1 for Energy Northwest location). Sanitary waste from the 300 Area, the former 1100 Area, and other facilities north of, and in, Richland discharge to the city of Richland treatment facility.

Noncompliance events in 1998 related to these permits are listed below.

- Temperature limits were exceeded for outfall 004 in the 100-K Area on one occasion. This was caused by the solar heating of water inventories and sand beds at the 183-KE Water Treatment Plant.
- Because of a very low water table at the 1301-N Liquid Waste Disposal Facility, samples could not be obtained for analyzing the required parameters (oil and grease, iron, ammonia, chromium, and pH) and was considered a noncompliance.
- At the 300 Area Treated Effluent Disposal Facility, concentration limits for copper were exceeded 10 times. A more-suitable limit for the treatment technology but still protective of the environment was established in the recently issued National Pollutant Discharge Elimination System permit (permit #WA-002591-7). Also, concentration limits for methylene chloride were exceeded twice. The cause was sample blank contamination rather than an effluent problem. Further, concentration limits for bis(2-ethylhexyl)phthalate were exceeded twice. A more-suitable limit has been established.

### 2.2.7.1 Liquid Effluent Consent Order

The Washington State Department of Ecology liquid effluent consent order (DE91NM-177), which regulates Hanford Site liquid effluent discharges to the ground, contains compliance milestones for Hanford Site liquid effluent streams designated as Phase I, Phase II, and Miscellaneous Streams. All state waste discharge permit applications have been submitted to the Washington State Department of Ecology for liquid effluent streams subject to regulation by the consent order. One new state waste discharge permit was issued on May 1, 1998 by the Washington State Department of Ecology: Permit ST 4509 for Hanford Site cooling water and condensate discharges.

The first Hanford Site miscellaneous streams categorical permit was issued by the Washington



State Department of Ecology for hydrotest, maintenance, and construction discharges. The permit became effective May 30, 1997 and expires on May 30, 2002. A second miscellaneous streams categorical permit for cooling water and condensate discharges was issued on May 1, 1998. An application for the third, and last, miscellaneous streams categorical permit for stormwater discharges was submitted to the Washington State Department of Ecology in August 1998; issuance is pending.

In 1998, there were eight noncompliances in three of the seven state waste discharge permits in place at the Hanford Site. Details are listed below.

- State waste discharge permit ST 4507, 100-N Area Sewage Lagoon - The effluent discharge limit for total suspended solids was exceeded and was attributed to an algae bloom. Engineered upgrades are being implemented to mitigate future recurrences. The effluent flow meter failed twice, violating continuous flow monitoring requirements. The first was attributed to a loss of power. When power was restored, the flow meter was restarted. The second was attributed to sub-zero weather, which resulted in damage to the equipment. The flow meter was

replaced with a unit designed to function in adverse conditions. The operations and maintenance manual was not submitted to the Washington State Department of Ecology within the specified time frame and was attributed to an administrative error. Training to the permit requirements was provided to personnel to prevent a recurrence.

- State waste discharge permit ST 4501, 400 Area secondary cooling water - The effluent discharge limit for manganese was exceeded and it was attributed to the high concentration of manganese that occurs naturally in the source water. The sample pump failed, violating composite sampling requirements. Simple mechanical failure was the cause, and the pump was repaired. The effluent discharge limit for total suspended solids was exceeded. The cause was attributed to incorrect laboratory analysis, following reanalysis of the effluent.
- State waste discharge permit ST 4508, hydrotest, maintenance, and construction discharges - The 20-min-duration limit for drinking water line flushing activities was exceeded bimonthly for several months. The cause was an administrative discrepancy between discharge limits and flushing procedures.

## 2.2.8 Safe Drinking Water Act

There are 12 public water systems on the Hanford Site. All public water systems are required to meet the Safe Drinking Water Act of 1974, the Safe Drinking Water Act Amendments of 1986, and the Safe Drinking Water Act Amendments of 1996. Specific performance requirements are defined within the federal regulations (40 CFR 141, EPA-570/9-76-003, EPA 822-R-96-001) and the Washington Administrative Code (WAC 246-290).

Radionuclides, inorganics, synthetic and volatile organics, lead and copper, and coliform bacteria are monitored in Hanford Site drinking water. All sampling results for 1998 were well below established maximum contaminant levels and action levels set by the Washington State Department of Health,

with the exception of one positive sample from the 100-N Area water system that was positive for total coliform bacteria. This sample was negative for *E. coli*. All follow-up sampling indicated satisfactory results.

During 1998, the 283-W Water Treatment Plant in the 200-West Area was operated in a manner that exceeded Washington state requirements. This water system uses a surface-water source, the Columbia River. Water systems that have surface-water sources must comply with the minimum requirements for removal or inactivation of pathogenic organisms. There are provisions embodied in the National Primary Drinking Water Regulations (40 CFR 141) for water systems that for 12 consecutive months





consistently perform above the requirements to apply for additional treatment credit. As a result of the excellent performance record established by the 283-W Water Treatment Plant, the Washington State Department of Health has been requested to evaluate the operating data and award the additional credit. Because of the plant's demonstrated ability to remove pathogenic organisms, the additional credit

allows the plant to not overtreat by vigorous disinfection. The result of the treatment credit is that less chlorine must be added to the water. The overall quality of the water is not changed.

Radionuclide activities in drinking water are discussed in Section 4.3, "Hanford Site Drinking Water Surveillance."

## 2.2.9 Toxic Substances Control Act

Requirements of this Act applied to the Hanford Site primarily involve regulation of polychlorinated biphenyls. Federal regulations for use, storage, and disposal of polychlorinated biphenyls are found in 40 CFR 761. The EPA issued a revision to these regulations, the disposal amendments, which became effective in August 1998 (63 FR 35383). The impacts of these new regulations to Hanford have been analyzed, and the necessary changes have been implemented. The state of Washington also regulates certain classes of polychlorinated biphenyls through the dangerous waste regulations in WAC 173-303-170.

Electrical transformers on the site have been sampled and characterized. Fourteen transformers with polychlorinated biphenyl concentrations >500 ppm remain in service. The timing of the replacement and disposal of these transformers will be based on the operational status decision for the Fast Flux Test Facility. The transformers will be needed if the facility is restarted.

Defueled, decommissioned, naval reactor compartments shipped by the United States Navy to the Hanford Site for disposal contain small quantities of polychlorinated biphenyls, which are tightly bound

in materials such as thermal insulation, cable coverings, and rubber. Because polychlorinated biphenyls are present, the reactor compartments are regulated under this Act. A compliance agreement between EPA and DOE defines the process by which a chemical waste landfill approval under this Act will be issued for the reactor compartment disposal trench.

Nonradioactive polychlorinated biphenyl waste is stored and disposed of in accordance with 40 CFR 761. Radioactive polychlorinated biphenyl waste remains in storage onsite, pending the development of adequate treatment and disposal technologies and capacities. Requirements for the storage of radioactive polychlorinated biphenyl wastes were included in the disposal amendments (63 FR 35383) and have effectively removed the need for a compliance agreement between DOE and EPA, which previously provided a mechanism for the storage of these wastes. DOE is working with EPA to cancel the agreement and is managing radioactive polychlorinated biphenyl wastes in compliance with the new requirements. Pacific Northwest National Laboratory continues to conduct research on the degradation of polychlorinated biphenyls in waste matrices under an alternative treatment technology approval from the EPA.

## 2.2.10 Federal Insecticide, Fungicide, and Rodenticide Act

This Act is administered by EPA. The standards administered by the Washington State Department

of Agriculture to regulate the implementation of the Act in Washington State include: Washington



Pesticide Control Act (RCW 15.58), Washington Pesticide Application Act (RCW 17.21), and rules relating to general pesticide use codified in WAC 16-228. At the Hanford Site, all pesticides are applied

by commercial pesticide operators who are listed on one of two commercial pesticide applicator licenses. In 1998, the Hanford Site was in compliance with the federal and state standards.

## 2.2.11 Endangered Species Act

Many rare species of native plants and animals are known to exist on the Hanford Site. Five species that may occur onsite (the bald eagle, peregrine falcon, Aleutian Canada goose, steelhead trout, and spring chinook salmon) are listed by the U.S. Fish and Wildlife Service as either endangered or threatened. Others are listed by the Washington State Department of Fish and Wildlife as endangered, threatened, or sensitive species (Appendix F). The site wildlife monitoring program is discussed in Section 7.2, "Ecosystem Monitoring (Plants and Wildlife)."

Bald eagles, a threatened species, are seasonal visitors to the Hanford Site. Several nesting attempts along the Hanford Reach were documented by Pacific Northwest National Laboratory in the 1990s. In compliance with the Endangered Species Act, the Hanford Site bald eagle management plan (DOE/RL-94-150) was finalized in 1994. That plan established seasonal 800-m (2,600-ft) restricted access zones around all active nest sites and five major communal roosting sites. If nesting activities at the historical nesting sites are observed in January and early February, all Hanford-related activities are restricted until the pair abandons nesting or successfully rears young. In 1997, nests were built by two pairs of eagles. The nesting eagles eventually left the area without successfully producing offspring. The pairs attempted to nest again in 1998, but it is not yet known if offspring were produced.

The peregrine falcon and the Aleutian Canada goose are rarely observed on the site. Steelhead and salmon are regulated as evolutionary significant units by the National Marine Fisheries Service based on their historical geographic spawning areas. The upper Columbia River evolutionary significant unit was listed as threatened in August 1997. In March 1999, the mid-Columbia River evolutionary significant units for steelhead and upper Columbia River spring-run chinook salmon were listed as threatened and endangered, respectively. A Hanford Site steelhead management plan is being prepared that will serve as the formal consultation with the National Marine Fisheries Service as required under the Endangered Species Act of 1973. Like the bald eagle management plan, the steelhead management plan will discuss mitigation strategies and will list activities that can be conducted without impacting steelhead trout or their habitats.

As part of the National Environmental Policy Act of 1969 review process, an ecological review was conducted on all projects to evaluate their potential of affecting federal- and/or state-listed species within the proposed project area (PNNL-6415, Rev. 10). The ecological review included quantifying impacts that might result and identifying mitigation strategies to minimize or eliminate such impacts.



## 2.2.12 National Historic Preservation Act, Archaeological Resources Protection Act, Native American Graves Protection and Repatriation Act, and American Indian Religious Freedom Act

Cultural resources on the Hanford Site are subject to the provisions of these four Acts. Compliance with the applicable regulations is accomplished through an active management and monitoring program that includes a review of all proposed projects to assess potential impacts on cultural resources, periodic inspections of known archaeological and historic sites to determine their condition and eligibility for listing on the National Register of Historic Places, determination of the effects of land management policies on the sites and buildings, and management

of a repository for federally owned archaeological collections. In 1998, 150 reviews were requested and conducted on the Hanford Site.

The American Indian Religious Freedom Act of 1978 requires federal agencies to help protect and preserve the rights of Native Americans to practice their traditional religions. DOE cooperates with Native Americans by providing site access for organized religious activities.

## 2.2.13 National Environmental Policy Act

The National Environmental Policy Act of 1969 requires preparation of appropriate documentation to analyze potential environmental impacts associated with proposed federal actions. An environmental impact statement is required to analyze the impacts associated with major federal actions that have the potential to significantly affect the quality of the human environment.

The following sections address environmental impact statements related to Hanford Site activities. Other National Environmental Policy Act documents include an environmental assessment, which is prepared when it is uncertain if a proposed action has the potential to impact the environment significantly and, therefore, would require the preparation of an environmental impact statement. A summary and status of environmental assessments that apply to specific activities and facilities on the Hanford Site may be found in HNF-SP-0903, Rev. 5, *National Environmental Policy Act Source Guide for the Hanford Site*. This report is updated annually.

Additionally, certain types of actions may fall into categories that have already been analyzed by DOE and have been determined not to result in a significant environmental impact. These actions, which are called categorical exclusions, are exempt from further National Environmental Policy Act review. Typically, over 20 specific categorical exclusions are documented by DOE Richland Operations Office annually, involving a wide variety of actions by multiple contractors. In addition, sitewide categorical exclusions are applied to hundreds of routine, typical actions conducted daily on the Hanford Site. In 1998, there were 20 sitewide categorical exclusions.

The Council on Environmental Quality, which reports directly to the President, was established to oversee the National Environmental Policy Act process. National Environmental Policy Act documents are prepared and approved in accordance with Council on Environmental Quality National Environmental Policy Act regulations (40 CFR 1500-1508),



DOE National Environmental Policy Act implementation procedures (10 CFR 1021), and DOE Order 451.1A. In accordance with the Order, DOE documents prepared for CERCLA projects incorporate National Environmental Policy Act values such as analysis of cumulative, offsite, ecological, and socioeconomic impacts to the extent practicable in lieu of preparing separate National Environmental Policy Act documentation.

### 2.2.13.1 Recent Environmental Impact Statements

Potential environmental impacts associated with ongoing, major activities at the Hanford Site have been analyzed in environmental impact statements issued in the past several years, followed by records of decision. Additional National Environmental Policy Act reviews, as appropriate, are being conducted during the course of the actions, moving forward as described in the records of decision. Environmental impact statements issued in 1998, and/or those that had significant related documentation issued, or other activities in 1998 are described below.

A final environmental impact statement for the Hanford Reach of the Columbia River was issued in June 1994 (National Park Service 1994). The proposed action is to designate the Hanford Reach of the Columbia River a recreational river under the National Wild and Scenic Rivers System, and designate the Wahluke Slope and Columbia River corridor areas of the DOE's Hanford Site a wildlife refuge under the U.S. Fish and Wildlife Service. The record of decision was issued in July 1996 (Babbitt 1996). No final decision regarding the Hanford Reach has been attained to date; discussions in Congress are ongoing. The Secretary of Energy announced a proposal in April 1998, that is consistent with the environmental impact statement proposed action, to manage the Wahluke Slope area as a National Wildlife Refuge.

An environmental assessment for the treatment of low-level, mixed waste by Allied Technology Group, Inc. was prepared (DOE/EA-1135) under the Washington State Environmental Policy Act (WAC 197-11) by the city of Richland as the lead agency. Allied Technology Group, Inc. proposes to construct and operate a low-level mixed waste facility in Richland, Washington. The proposed facility would be located adjacent to Allied Technology Group's existing low-level radioactive waste treatment facility and would be designed to treat low-level mixed waste from DOE's Hanford Site and other governmental and commercial generators of low-level mixed waste. Additional documentation pertaining to the final environmental impact statement is listed below.

- A final environmental assessment for the transport of contact-handled, low-level, mixed waste from the Hanford Site to Allied Technology Group's mixed waste facility for nonthermal treatment and to return the treated waste to the Hanford Site for eventual land disposal was issued (DOE/EA-1189). A finding of no significant impact was issued on September 29, 1998.
- An environmental assessment for the thermal treatment of DOE's contact-handled, low-level, mixed waste at the Allied Technology Group's gasification and vitrification building was issued (DOE-1135). A finding of no significant impact was issued on May 6, 1999.

A final environmental impact statement for the management of spent nuclear fuel from the K-East and K-West Fuel Storage Basins (K Basins) was issued (DOE/EIS-0245F). The proposed action is drying/passivation of spent nuclear fuel, with subsequent dry storage. The record of decision was issued in March 1996 (61 FR 10736). A supplemental analysis provided a basis for a determination of whether a supplemental environmental impact statement is required as a result of deleting a process step from the preferred alternative selected in the record of decision. It was determined that no additional National Environmental Policy Act analysis was required.



A final environmental impact statement, coprepared by the Washington State Department of Ecology and DOE, for the Hanford Site's tank waste remediation system was issued (DOE/EIS-0189). The proposed actions are the retrieval of radioactive wastes from double- and single-shell waste tanks and the subsequent stabilization of the wastes in forms suitable for disposal. The record of decision was issued in February 1997 (62 FR 8693). A supplement analysis (DOE/EIS-0189-SA2) was issued that addressed the potential effect that new data and information, developed since the preparation of the tank waste remediation system environmental impact statement, may have on the impacts presented in the statement. DOE determined that the information developed since the preparation of the environmental impact statement has a small effect on the impacts calculated in the statement and that the changes in environmental impacts are bounded by the impacts presented. Therefore, no additional National Environmental Policy Act analysis was required.

### 2.2.13.2 Programmatic Environmental Impact Statements

A final programmatic environmental impact statement was issued in May 1997 (DOE/EIS-0200F) to evaluate management and national siting alternatives for the treatment, storage, and disposal of five

types of radioactive and hazardous waste. Hanford was considered in all alternatives. A record of decision was issued in January 1998 (63 FR 3623) on treatment and storage of transuranic waste. A subsequent record of decision on hazardous waste treatment was issued in August 1998 (63 FR 41810). Other records of decision are expected on this environmental impact statement.

### 2.2.13.3 Site-Specific Environmental Impact Statements in Progress

A Hanford Site remedial action environmental impact statement is being prepared for the development of a comprehensive land-use plan for the Hanford Site. A second draft environmental impact statement, prepared with cooperating agencies, was issued for public comment in April 1999 (DOE/EIS-0222D). The final environmental impact statement is expected to be issued in late 1999.

An environmental impact statement is being prepared for the Hanford Site Solid Waste (radioactive and hazardous) Program to address management of Hanford Site solid wastes. A draft environmental impact statement is being prepared in cooperation with the Yakama Indian Nation; it is expected to be issued for public comment in late 1999.

## 2.2.14 Hanford Site Permitting Summary

The Hanford Site has obtained, or is in the process of obtaining, numerous environmental permits. The permits and their status are summarized in DOE/RL-96-63 (Rev. 2), *Annual Hanford Site Environmental Permitting Status Report*. For RCRA permitting, the Hanford Site is considered a single facility and has been issued one EPA identification number. The identification number encompasses over 60 treatment, storage, and/or disposal units. (Three additional identification numbers were effective in November 1996. However, these do not apply

to treatment, storage, and disposal units.) The initial RCRA permit was issued for less than the entire facility because all units cannot be permitted simultaneously. The permit, through the permit modification process, will eventually incorporate all treatment, storage, and disposal units.

Implementation of the Clean Air Act is facilitated by several permits. Title V of the Act requires an air operating permit for major stationary sources, including the Hanford Site. The proposed Hanford



Site air operating permit was issued in February 1999 for EPA review. The Washington State Department of Ecology has since withdrawn the proposed permit and is scheduled to reissue a revised draft permit for public review later in 1999. Regulatory approvals must be obtained prior to constructing or modifying facilities that emit regulated air pollutants. To date, 65 approvals have been obtained from the Washington State Department of Ecology, 314 from the Washington State Department of Health, and 161 from the EPA. These numbers change as a result of continuing activities that require permits.

The sitewide and the 300 Area Treated Effluent Disposal Facility pollutant discharge elimination

system permits govern liquid process effluent discharges to the Columbia River. Stormwater discharges to the Columbia River are permitted by the National Pollutant Discharge Elimination System (40 CFR 122). Waste discharge permits are required by WAC 173-216 and are summarized in Section 2.2.7.1, "Liquid Effluent Consent Order."

Other Hanford Site permitting addressed in the permitting status report (DOE/RL-96-63, Rev. 2) includes research, development, and demonstration; solid waste handling; onsite sewage systems; and permitting of underground petroleum storage tanks. Also refer to Appendix C, Table C.6.